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Application Translation - IPER ANNEX

Specification

# PROTECTIVE DEVICE AND METHOD FOR PROTECTING A SECOND DEVICE FROM THE ELECTROMAGNETIC RAYS OF A FIRST DEVICE

The invention relates to a protective device and a method for protecting a second device from the electromagnetic rays of a first device, particularly for use in hospitals.

One such protective device and such a method are known for instance from US Patent 6,343,213 B1.

Wireless communications networks, and especially radio networks known by the name WLAN (wireless local area network), are often used in buildings.

From US Patent Disclosure 2003/0114104 A1, to assure safe wireless communication between a central access point and a mobile device via a Bluetooth interface, ascertaining the difference between the access point and the mobile device with the aid of an RFID (Radio Frequency IDentification) system is provided. Only within a range from the access point that is determined via the RFID is communication permitted.

Restrictions in the use of such radio networks often arise because of devices that are sensitive to electromagnetic radiation, especially in hospitals. In areas where devices, such as respirators, which might be affected

by electromagnetic radiation are located, radio networks are therefore typically not used.

A system for converting the operating mode of mobile radio devices in threatened areas, such as hospitals, is for instance known from US Patent 6,343,213 B1. In this case, a base station can send a signal to the mobile radio device that causes a switchover to lower power or a shutoff of the mobile radio device.

A further system for protecting a defined area against effects from mobile radio devices is known from European Patent Disclosure EP 1 035 746 A1. In this system, protective devices are provided that operate independently of the telecommunications system, and in particular with different radio frequencies.

The object of the invention is to achieve additional fields of use for radio networks in areas where devices that are sensitive to electromagnetic radiation are located, especially in hospitals.

This object is attained according to the invention by a protective device having the characteristics of claim 1 and by a method for operating a radio network having the characteristics of claim 7. Here a first device is a device of the radio network that has a transmitter, while a second device is a device that is to be protected against the electromagnetic radiation of the transmitter. One of the two devices has a wireless interrogation system, which cooperates with a transponder, as a reflecting device, of the other

device. The interrogation system, together with the reflecting device, forms a contactless detection system, which furnishes the first and/or second device with at least approximate information about the distance between the two devices. Preferably, the device in the radio network that has the transmitter is at the same time equipped with the interrogation system as well, while the second device that is sensitive to the electromagnetic radiation of the radio network has the reflecting device, preferably embodied as a transponder. In this configuration, the electromagnetic load on the second device, which is threatened by electromagnetic radiation, and in particular is a medical device, is monitored and controlled overall.

Depending on the type and size of the devices, among other factors, however, the second device, to be protected against the radiation of the radio network, may also have a transceiver unit of a contactless interrogation system, while the first device, forming part of the radio network, has a corresponding reflecting device.

Depending on the distance between the devices, measured by means of the contactless proximity measuring system, a switchover is made between two different operating modes, namely a normal operating mode and a special operating mode, the latter intended for shorter distances, of at least one of the devices. The term "distance" should be understood to mean a distance signal that is dependent on the distance and is measurable by the measurement system. In addition to the geometric spacing between the devices, any possible influence of the radiation, originating at the transmitter, because of

radiation-absorbing or -reflecting elements is taken into account. In other words, what is decisive for the switchover between the various operating modes is the degree of attenuation of the electromagnetic radiation, originating at the transmitter, at the location of the second device.

In a first embodiment, the transmission power of the transmitter of the first device is set differently in the various transmission modes. The transmission power can be reduced in stages or continuously here. In the event of impermissibly high electromagnetic field intensities in the area of the second device,...